

## THE AMERICAN SPECIES OF MEIBOMIA OF THE SECTION NEPHROMERIA.

By J. N. ROSE AND PAUL C. STANDLEY.

Of the several sections of the genus *Meibomia*, that designated as *Nephromeria* by Bentham<sup>1</sup> is one of the smallest. Besides the American species, a single one is known from Sumatra. Hitherto six American species have been recognized, one of which is but imperfectly known. Three additional ones are described in the present paper, making a total of nine.

The section *Nephromeria* is distinguished from the others of the genus by the few reniform or subreniform joints of the loment. In some species this reniform outline is not very pronounced, but there is always a more or less evident sinus along the dorsal suture of each joint.

The species fall readily into two groups. In the first, composed of but two species, *Meibomia mollis* and *M. scopulorum*, the loment are sessile, the 3 lowest joints usually do not develop, but are small and abortive, and the tips of the calyx lobes are subulate. Most important of all, the plants are low and erect. In the second group, which includes the seven other species, the loment are commonly stipitate, only the lowest joint (if any) is abortive, and the calyx lobes are flat and broad, far from subulate. Most, if not all, of the species of this group are coarse, high-climbing vines. The joints of their loment are generally much larger and broader than those of the smaller group.

But few specimens of these plants, excepting only *Meibomia mollis*, are found in herbaria. Explorations in Central America and southern Mexico during the last few years have supplied the U. S. National Herbarium with ampler material, among which we have detected several apparently undescribed species, besides representatives of all but one of those previously known.

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<sup>1</sup> In Benth. & Hook. Gen. Pl. 1: 520. 1865, as a subsection of the section *Heteroloma*.

## KEY TO THE SPECIES:

Three lowest joints of the loment usually not developing, twisted; loment sessile; tips of the calyx lobes subulate.

Leaflets linear-lanceolate; terminal joint of the loment semiorbicular ----- 1. *M. scopulorum*.

Leaflets lance-ovate; terminal joint of the loment elliptic-oblong, abruptly narrowed at both ends ----- 2. *M. mollis*.

Only the lowest joint, or sometimes none, abortive, the joints not twisted; loment usually stipitate; tips of calyx lobes not subulate.

Flowers and fruit in a dense panicle; often more than two joints of the loment developing ----- 3. *M. skinneri*.

Flowers and fruit not in a dense panicle, the inflorescence open; never more than two joints of the loment developing.

Leaflets orbicular, rounded at the apex ----- 4. *M. painteri*.

Leaflets ovate or lanceolate, acute or acutish.

Leaflets thick, glabrous, and shining above ----- 5. *M. metallica*.

Leaflets thin, pubescent, and dull above.

Loment sessile; leaflets with a broad, silvery stripe along the midrib ----- 6. *M. albonitens*.

Loment conspicuously stipitate; leaflets not striped.

Leaflets apiculate; joints very large, 25 to 30 mm. long ----- 7. *M. lunata*.

Leaflets not apiculate; joints smaller, less than 20 mm. long.

Joints narrowed at the base; leaflets lance-ovate ----- 8. *M. angustata*.

Joints not narrowed at the base; leaflets ovate ----- 9. *M. barclayi*.

1. *Meibomia scopulorum* (S. Wats.) Rose & Standley. PLATE 51, b.

*Desmodium scopulorum* S. Wats. Proc. Amer. Acad. 24: 47. 1889.

Stems erect, slender, much branched, pale, minutely uncinately puberulent; leaves trifoliate; petioles slender, 30 to 35 mm. long, striate, puberulent; leaflets linear-lanceolate, 55 to 80 mm. long, acute, rounded at the base, glabrous except along the minutely uncinately veins; stipules lanceolate, long-acuminate, persistent; petiolules 2 mm. long; inflorescence of terminal or axillary, slender panicles or racemes, the branches minutely puberulent; flowers solitary or in twos, on slender pedicels 10 mm. long; calyx teeth ovate, with subulate tips; corolla not seen; bracts filiform, short; loment sessile, of usually 4 joints, all except the terminal one abortive, the lowest three twisted, densely puberulent; terminal joint semiorbicular, 10 mm. long, with scarcely any suture on the upper edge, the walls thin, finely puberulent.

Type locality, "Guaymas," Sonora, Mexico. Type collected by Dr. Edward Palmer in 1887 (no. 258).

*Specimens examined:*

SONORA: On rocky ledges in the mountains about Guaymas, 1887, Palmer 258, type collection.

2. *Meibomia mollis* (Vahl) Kuntze, Rev. Gen. Pl. 198. 1891. PLATE 51, d.*Hedysarum molle* Vahl, Symb. Bot. 2: 83. 1791.*Desmodium molle* DC. Prodr. 2: 332. 1825.

Stems erect, stout, herbaceous, much branched, minutely uncinat-puberulent; petioles 35 mm. long or less, those of the uppermost leaves very short, uncinat-puberulent; leaflets 3, ovate to lanceolate, 24 to 70 mm. long, rounded or sometimes subcordate at the base, acutish, of about the same color on both surfaces, sparingly puberulent above, finely soft-pubescent beneath; petiolules 2 or 3 mm. long; stipules 4 mm. long, triangular-subulate; inflorescence mostly of axillary and terminal simple racemes disposed so as to form a panicle, the racemes 25 cm. long or less; flowers usually in clusters of 3 or 4, on slender pedicels 6 mm. long; bracts short, filiform, villous, deciduous; calyx cleft almost to the base, the lobes about equal, lanceolate, puberulent, their tips subulate; corolla greenish yellow, 3 or 4 mm. long; loment sessile, of usually 4 joints, all except the terminal one abortive, twisted, densely puberulent; terminal joint elliptic-oblong, somewhat narrowed at both ends, 9 mm. long, with a shallow sinus on the upper edge, minutely pubescent, with thin, membranous walls.

Type locality, Island of St. Croix, West Indies.

*Specimens examined:*PORTO RICO: Sandy soil, Culebra, March, 1906, *Britton & Wheeler* 238;Juana-Diaz, "ad vias circa Escalabrado," November 30, 1885, *Sintenis* 2900.ST. CROIX: Jerusalem, January 8, 1896, *Ricksecker* 198.CUBA: Limestone hillside, Guantanamo Bay, March, 1909, *Britton* 1940.COSTA RICA: Forêts de Nicoya, January, 1900, *Tonduz*, Inst. Fís. Geogr. Costa Rica 13590.MEXICO: Limestone ledges near Iguala, Guerrero, October 25, 1900, *Pringle* 9264; Tomellin Canyon, Oaxaca, September 7, 1906, *J. N. & J. S. Rose* 11327.

The Mexican specimens differ in having the terminal joint glabrous except along the margin, where it is minutely puberulent; otherwise there seems to be no essential difference from West Indian specimens.

3. *Meibomia skinneri* (Benth.) Kuntze, Rev. Gen. Pl. 198. 1891. PLATE 51, h.*Desmodium skinneri* Benth.; Hemsl. Diag. Pl. Mex. 3: 47. 1880.

Stems stout, suffrutescent, usually erect, glabrous in age, the younger branches with dense, retrorse, soft pubescence, the hairs usually tawny; leaves numerous, large, trifoliate; petioles stout, 5 cm. long or less, soft-pubescent, striate; stipules lanceolate, 7 or 8 mm. long, deciduous, membranaceous, strigillose; leaflets ovate to oblong or rhombic-lanceolate, often unequal at the base, the terminal one largest and broadest, 12 cm. long or less, acutish to obtuse at the apex, rounded at the base, sparingly strigillose above, paler and densely velvety-pubescent beneath, the pubescence tawny along the veins, elsewhere white; petiolules very short and stout; inflorescence a dense, much branched, leafy or naked, terminal panicle, axillary racemes or panicles often present, the branches often sparingly uncinat; flowers on filiform pedicels 3 mm. long; bracts subulate, very short, hirtellous, deciduous; calyx appressed-pubescent, scarcely bilabiate, the teeth ovate and acute; corolla deep purple, 6 or 7 mm. long; loment of usually 3 joints, raised on a slender stipe 2 or 3 mm. long; constrictions very narrow; joints semiorbicular, with thin, mem-

branous walls, 11 to 13 mm. long, 7 mm. wide, with a very shallow sinus on the upper side, puberulent when young, becoming glabrous.

Type locality, "Guatemala." Type in the Kew Herbarium, collected by Skinner (no. 37).

*Specimens examined:*

GUATEMALA: 1891, *J. D. Smith*; Garrucha, Depart. Chimaltenango, alt. 1350 meters, March, 1892, *Heyde & Lux* 3287; 1892, *Heyde* 519; Lake Amatitlan, February 11, 1905, *W. A. Kellerman* 4355.

MEXICO: Roadside between Mascota and San Sebastian, Jalisco, March 14, 1897, *E. W. Nelson* 4049; roadside between San Sebastian and the summit of the mountain known as the "Bufa de Mascota," Jalisco, alt. 1800 meters, March 20, 1897, *Nelson* 4109.

**4. *Meibomia painteri* Rose & Standley, sp. nov. PLATE 51, a.**

Stems herbaceous, climbing, stout, angled, rather sparingly uncinat-hirsute; leaves large, trifoliate; petioles 3 to 7 cm. long, stout, uncinat-hirtellous; leaflets orbicular or broadly oblong, all of about the same size, 3 to 8 cm. long, sparingly strigillose above and more densely so beneath, slightly paler beneath, the veins large and conspicuous; petiolules stout, 5 to 7 mm. long, hirtellous; stipules persistent, ovate; inflorescence of simple, axillary racemes, or these sometimes sparingly branched, 2 or 3 from each axil, the branches uncinat-puberulent; flowers not seen; pedicels 6 mm. long; bracts deciduous; loment of 1 or 2 joints, on a stipe 3 mm. long, the lower joint often abortive, the terminal one sometimes smaller than the basal; constrictions very narrow; joints orbicular-reniform, 10 to 12 mm. long and almost as wide, with a shallow suture upon the upper edge, the center hard and turgid, surrounded by a rather thin wing, the whole strongly reticulate-veined, sparingly and very finely puberulent.

Type in the U. S. National Herbarium, no. 690911, collected in Iguala Canyon, near Iguala, Guerrero, Mexico, September 21, 1905, by C. G. Pringle (no. 13688).

From all other species of the group this may at once be distinguished by its orbicular leaflets and the peculiar inflorescence. The joints of the loment, too, are not like those of any other species.

The species is named for Mr. J. H. Painter, formerly Assistant Curator in the Division of Plants of the U. S. National Museum, who, at the time of his death, was preparing to monograph the genus *Meibomia*. He had indicated this plant as a new species in the herbarium, but failed to give it a name.

**5. *Meibomia metallica* Rose & Standley, sp. nov. PLATE 51, c.**

Stems stout, climbing, suffrutescent below, smooth, conspicuously uncinat-hirtellous; leaves ample, numerous, trifoliate; petioles 25 to 60 mm. long, rather slender, uncinat-hirtellous; stipules lanceolate, attenuate, deciduous; leaflets ovate to ovate-lanceolate, rounded at the base, acute, mucronate, 7 to 11 cm. long, glabrous and shining above with an almost metallic sheen, thick and coriaceous, sometimes sparingly pubescent in the youngest leaves, densely soft-pubescent or sericeous beneath, most of the hairs whitish but those along the conspicuous veins bright yellow and longer; petiolules stout, 2 or 3 mm. long, densely pubescent with tawny hairs; inflorescence of terminal, sparingly branched panicles, or of simple, axillary racemes, the branches stout, densely uncinat-hirtellous; flowers on slender pedicels 6 mm. long; bracts soon deciduous, lanceolate, long-acuminate, 4 mm. long, hirsute; calyx finely puberulent, large, about 4 mm. long, almost equally 5-toothed, the teeth ovate, abruptly short-acuminate; corolla purple; loment raised on a slender stipe 3 mm. long, of usually 2 joints, the lower one often abortive; joints quadrate-orbicular, almost straight on the upper edge but with an obtuse suture 2.5 mm. deep, about

20 mm. long, thin, conspicuously reticulate, finely hispidulous; constrictions very narrow.

Type in the U. S. National Herbarium, no. 408084, collected by O. F. Cook and R. F. Griggs at Cajabon, Alta Verapaz, Guatemala, March 30, 1902 (no. 354). The specimen on this sheet is in fruit, but a flowering branch of the same collection is mounted on sheet no. 408083. The thick leaflets, glabrous and shining on the upper surface, distinguish the plant from all the related species, but good additional characters are found in the fruit.

*Other specimens examined:*

GUATEMALA: Sehachicha, Alta Verapaz, March, 1902, *H. von Tuerckheim* 8367.

6. *Meibomia albonitens* (Lem.) Rose & Standley.

*Rhynchosia?* *albonitens* Lem. Ill. Hort. Lem. 1861: pl. 290. 1861.

*Desmodium skinneri albolineatum* Hook. Curtis's Bot. Mag. pl. 5452. 1864.

*Desmodium skinneri albonitens* Hook. loc. cit.

*Desmodium scutatum* Hemsl. Diag. Pl. Mex. 3: 46. 1880.

*Meibomia scutata* Kuntze, Rev. Gen. Pl. 193. 1891.

Type locality, "Tierras templadas" of Mexico. The species was described from plants cultivated from seeds collected by Ghiesbreght.

We have seen no specimens corresponding to the plates cited and to Hemsley's description of the species. That author describes the lomenta as subsessile and the joints as being one to one and one-half inches in diameter. The leaflets are illustrated as having a lighter, silvery stripe running along the midribs. None of our specimens of the section *Nephromeria* agree with these requirements. *Meibomia lunata* seems to be very closely related and comes from about the same region where *M. albonitens* was probably collected, but that species has conspicuously stipitate lomenta and its leaflets are of the same shade of green throughout.

7. *Meibomia lunata* (T. S. Brandeg.) Rose & Standley.

PLATE 51, *f*.

*Desmodium lunatum* T. S. Brandeg. Zoe 5: 246. 1908.

Stems somewhat woody below, climbing, slender, the older ones glabrous, the younger uncinately-hirtellous; leaves trifoliolate; stipules deciduous; petioles slender, 2 to 5 cm. long, uncinately; leaflets all of about the same size, 55 to 95 mm. long, lanceolate, acute, mucronate, dull green above, paler beneath and densely sericeous, sparingly strigillose above, the veins few and inconspicuous; petiolules stout, 2 to 3 mm. long, villous; inflorescence of terminal or axillary simple racemes or panicles, with uncinately-puberulent branches; flowers on slender pedicels 2 or 3 mm. long; bracts deciduous, less than 4 mm. long, lanceolate, acuminate, reddish, pilose with yellowish hairs; calyx sparingly villous, the teeth ovate, acuminate; corolla purplish, 5 or 6 mm. long; joints large, 24 mm. long or less and almost as wide, quadrate-orbicular, with an acute suture 5 mm. deep on the upper edge, conspicuously reticulate-veined, puberulent, usually with an acute beak at the apex; constrictions 1 to 2 mm. wide.

Type locality, "In openings of forests near Zacuapan," Vera Cruz, Mexico. Type collected in 1906 by C. A. Purpus, no. 1907.

*Specimens examined:*

MEXICO: Zacuapan, Vera Cruz, 1906, *Purpus* 1907, type collection; Zacuapan, January, 1907, *Purpus* 2961.

8. *Meibomia angustata* Rose & Standley, sp. nov.

PLATE 51, *g*.

Stems slender, flexuous, herbaceous, the older ones almost glabrous, the younger very finely and rather sparingly uncinately-puberulent; leaves numerous,

trifoliate; petioles slender, 17 to 30 mm. long, angled, finely retrorse-pubescent; stipules deciduous; leaflets ovate-lanceolate, rounded at the base, obtuse, 24 to 80 mm. long, of about the same color on both surfaces, sericeous on both sides, more densely so beneath; petiolules stout, 3 mm. long, densely pubescent; inflorescence of few, rather remote, simple racemes 17 cm. long or less, the slender branches puberulent; flowers on slender pedicels 1 to 2 mm. long; bracts subulate or lanceolate, very small, early deciduous; calyx finely pubescent, the teeth triangular, acute; corolla deep purple, 5 mm. long; loment of a single joint, raised on a slender stipe 2.5 mm. long; joints semiorbicular, 15 mm. long, conspicuously narrowed and acute at the base, rounded at the apex, with an obtuse sinus 2 mm. deep on the upper edge, finely puberulent, the walls very thin and transparent, the persistent and very slender style 3 mm. long.

Type in the U. S. National Herbarium, no. 327048, collected along the roadside between San Sebastian and Las Palmas, Jalisco, Mexico, altitude 300 to 600 meters, March 30, 1897, by E. W. Nelson (no. 4126).

This plant is more closely related to *M. skinneri* than to any other member of the group, but it differs in the uniformly solitary joint, deep sinus, narrow base of the joint, and more scanty and open inflorescence. It is impossible to tell from our specimens whether the stems are erect or climbing.

9. *Meibomia barclayi* (Benth.) Rose & Standley.

PLATE 51, e.

*Desmodium barclayi* Benth. Bot. Voy. Sulph. 83. 1844.

Stems herbaceous, climbing, flexuous, uncinately hirtellous, the branches diverging almost at right angles to the main axis; leaves trifoliate; petioles 2 to 3 cm. long, uncinately hirtellous; leaflets broadly ovate to rhombic-ovate, the terminal one largest, about 4 cm. long, the lateral ones 2 to 3 cm. long, all puberulent on both surfaces, paler beneath; petiolules about 1 mm. long; stipules semiovate, acuminate, 4 mm. long, striate; inflorescence of terminal or axillary, sparingly branched panicles, these usually about 10 cm. long, the branches sparingly uncinately; flowers not seen; loment of usually 2 joints connected by a very narrow isthmus, raised on a stipe 3 mm. long, the pedicels 4 or 5 mm. long; joints reniform-orbicular, 9 to 12 mm. long and almost as wide, with an acute suture 2 mm. deep upon the upper edge, the central portion hard and turgid, brown, surrounded by a broad and thin, green wing, the whole conspicuously reticulate, glabrous except along the puberulent edges.

Type locality, "Central America." Type collected by Barclay. Hemsley cites<sup>1</sup> a specimen of Barclay's from Nicaragua. This is probably the type.

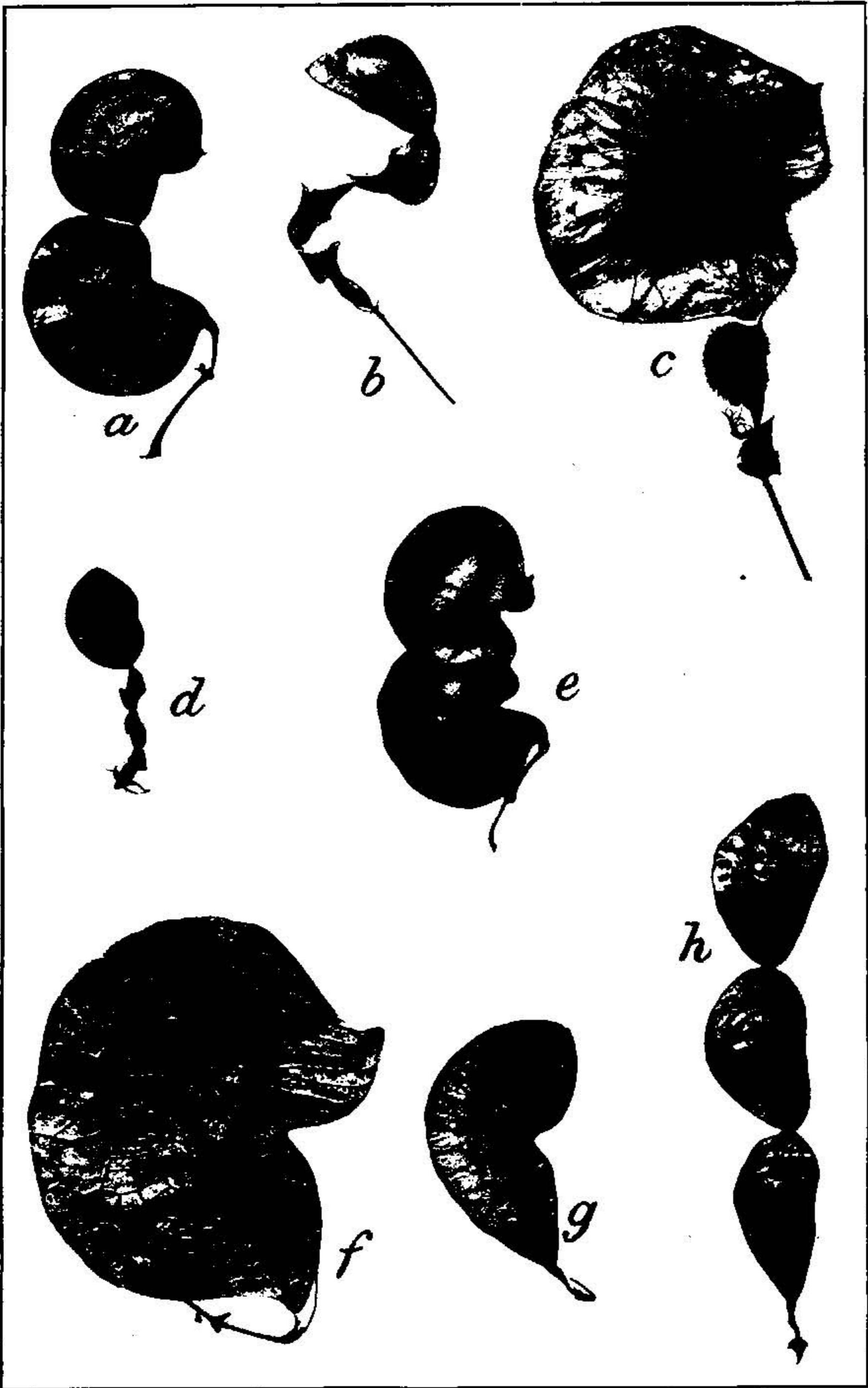
*Specimens examined:*

COSTA RICA: Buissons á Nicoya, January, 1900. *Tonduz*, Inst. Fís. Geogr. Costa Rica, no. 13577.

The specimen cited answers the original description of *Desmodium barclayi* very well, and is the only such plant examined.

EXPLANATION OF PLATE 51.—Loment, *a*, of *Meibomia painteri*, from type specimen; *b*, of *M. scopulorum*, from a specimen of the type collection; *c*, of *M. metallica*, from type specimen; *d*, of *M. mollis*, from a specimen collected by Ricksecker (no. 198) at Jerusalem, St. Croix; *e*, of *M. barclayi*, from Nicoya, Costa Rica, *Tonduz* 13577; *f*, of *M. lunata*, from a specimen of the type collection; *g*, of *M. angustata*, from type specimen; *h*, of *M. skinneri*, from specimen collected by Heyde and Lux, near Garrucha, Guatemala (no. 3287). All twice natural size.

<sup>1</sup> Biol. Centr. Amer. Bot. 1: 275. 1880.



FRUITS OF EIGHT SPECIES OF MEIBOMIA.